

C L A I M S

1. 1. Apparatus for aiding in the identification of tissue
2 type for an anomalous tissue in an impedance image
3 comprising:
4 means for providing a polychromic immittance map of a
5 portion of the body;
6 means for determining a plurality of polychromic
7 measures of an anomalous region of the immittance image; and
8 a display which displays an indication based on said
9 plurality of polychromic measures.
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- 11 2. Apparatus according to claim 1 including means for
12 providing a map of said polychromic measures and wherein said
13 indication includes a display of a plurality of said maps.
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- 15 3. Apparatus according to claim 2 wherein said display
16 includes an overlay of maps of said polychromic measures.
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- 18 4. Apparatus according to claim 3 and including means for
19 matching the values of the plurality of measures with
20 predetermined values of the measures to identify the tissue
21 type of the anomalous tissue.
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- 23 5. Apparatus according to claim 4 wherein the values of the
24 measures are normalized values.
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- 26 6. Apparatus according to claim 4 wherein the indication is
27 the display of a map of said determined tissue type.
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- 29 7. Apparatus for determining a tissue type for an anomalous
30 tissue comprising:
31 means for determining a plurality of polychromic
32 measures of the anomalous tissue; and
33 means for matching the values of the plurality of
34 measures with predetermined values of the measures to
35 identify the tissue type of the anomalous tissue.
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- 37 8. Apparatus according to claim 7 wherein the values of the
38 measures are normalized values.
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2 9. Apparatus according to claim 7 wherein one of the
3 polychromic measures is derived from the frequency at which
4 the capacitance spectrum of the anomaly crosses a capacitance
5 spectrum of typical nonanomalous regions.

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7 10. Apparatus according to claim 7 wherein one of the
8 polychromic measures is derived from the integrated deviation
9 of the capacitance or conductance of the anomaly from that of
10 typical nonanomalous regions.

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12 11. Apparatus according to claim 10 wherein one of the
13 polychromic measures is derived from the sum, over a
14 plurality of frequencies, of the positive deviations of the
15 capacitance of the anomaly from that of typical nonanomalous
16 regions.

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18 12. Apparatus according to claim 10 wherein one of the
19 polychromic measures is derived from the sum, over a
20 plurality of frequencies, of the negative deviations of the
21 capacitance of the anomaly from that of typical nonanomalous
22 regions.

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24 13. Apparatus according to claim 10 wherein one of the
25 polychromic measures is derived from the sum, over a
26 plurality of frequencies, of the positive deviations of the
27 conductance of the anomaly from that of typical nonanomalous
28 regions.

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30 14. Apparatus according to claim 7 wherein
31 one of the measures is the integral of the phase or the sum
32 of phase values over a range of frequencies.

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34 15. Apparatus according to claim 7 wherein one of the
35 measures is the difference between the integral of the
36 difference between the phase at a point and the mean or
37 median value of the phase in the image, over a range of
38 frequencies.

1 16. Apparatus according to claim 7 wherein one of the
2 measures is the derivative of the capacitance curve or its
3 logarithm as a function of frequency, evaluated at a given
4 frequency.

5 17. Apparatus according to claim 7 wherein one of the
6 measures is the derivative of the conductance curve or its
7 logarithm as a function of frequency, evaluated at a given
8 frequency.

10 18. Apparatus according to claim 7 wherein one of the
11 measures is a frequency at which the phase of the impedance
12 reaches a specified value.

14 19. Apparatus according to claim 16 wherein the specified
15 value is 45 degrees.

17 20. A method of determining a tissue type for tissue in an
18 anomalous region in an immittance image, comprising:
19 determining a plurality of polychromic measures of said
20 anomalous region; and
21 matching the values of the plurality of measures with
22 predetermined values to identify the tissue type of the
23 anomalous region.

25 21. A method of determining a tissue type for an anomalous
26 tissue:
27 determining a plurality of polychromic measures of the
28 anomalous tissue;

29 matching the values of the plurality of measures with
30 predetermined values to identify the tissue type of the
31 anomalous tissue.

33 22. A method according to claim 21 wherein one of the
34 polychromic measures is derived from the frequency at which
35 the capacitance spectrum of the anomaly crosses a capacitance
36 spectrum of typical nonanomalous regions.

38 23. A method according to any of claim 21 wherein one of the
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1 polychromic measures is derived from the integrated deviation
2 of the capacitance or conductance of the anomaly from that of
3 typical nonanomalous regions.

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5 24. A method according to claim 23 wherein one of the
6 polychromic measures is derived from the sum, over a
7 plurality of frequencies, of the positive deviations of the
8 capacitance of the anomaly from that of typical nonanomalous
9 regions.

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11 25. A method according to claim 23 wherein one of the
12 polychromic measures is derived from the sum, over a
13 plurality of frequencies, of the negative deviations of the
14 capacitance of the anomaly from that of typical nonanomalous
15 regions.

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17 26. A method according to claim 23 wherein one of the
18 polychromic measures is derived from the sum, over a
19 plurality of frequencies, of the positive deviations of the
20 conductance of the anomaly from that of typical nonanomalous
21 regions.

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23 27. A method according to claim 21 wherein one of the
24 measures is the integral of the phase or the sum of phase
25 values over a range of frequencies.

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27 28. A method according to claim 21 wherein one of the
28 measures is the difference between the integral of the
29 difference between the phase at a point and the mean or
30 median value of the phase in the image, over a range of
31 frequencies.

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33 29. A method according to claim 21 wherein one of the
34 measures is the derivative of the capacitance curve or its
35 logarithm as a function of frequency, evaluated at a given
36 frequency.

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38 30. A method according to claim 21 wherein one of the
39 measures is the derivative of the conductance curve or its

1 logarithm as a function of frequency, evaluated at a given
2 frequency.

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4 31. A method according to claim 21 wherein one of the
5 measures is a frequency at which the phase of the impedance
6 reaches a specified value.

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8 32. A method according to claim 31 wherein the specified
9 value is 45 degrees.

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11 33. A method according to claim 21 wherein the values of the
12 measures are normalized values.

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